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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,620	03/18/2004	Krishna Singh		5887

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WOLF, BLOCK, SCHORR & SOLIS-COHEN LLP  
1650 ARCH STREET, 22ND FLOOR  
PHILADELPHIA, PA 19103-2334

EXAMINER
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PALABRICA, RICARDO J

ART UNIT	PAPER NUMBER
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3663

DATE MAILED: 01/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/803,620	<b>Applicant(s)</b> SINGH	
	<b>Examiner</b> Rick Palabrica	<b>Art Unit</b> 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 8/15/05, 10/13/05, 10/25/05 and 1/11/06.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-30 and 35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 and 35 is/are rejected.
- 7) ☒ Claim(s) 1 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. Applicant's 1/11/06 Reply to the 12/9/05 Office action is acknowledged. In view of Applicant's arguments in said Reply, the 12/9/05 Office action is withdrawn and replaced with this action.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-8, 10, 13-25, 29, 30, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Kugeler et al. (U.S. 4,634,875), who disclose a transitory storage vessel for highly radioactive waste (e.g. see Figs. 1-5).

Applicant's claim language reads on Kugeler et al. as follows: a) "body having a cavity" reads on the storage vessel shown, for example, in Fig. 1; b) "cavity" reads on storage chamber or space 1 (see col. 4, lines 39+); c) "spent fuel canister" reads on storage container 7, which contains waste capsules 11 that have highly radioactive waste embedded in borosilicate glass. (Examiner's note: Kugeler et al.'s high level waste comes from reprocessing of spent fuel and therefore inherently contains spent fuel, e.g., fission products of irradiated uranium fuel.); d) "inlet ventilation duct extending from an above grade inlet to a below grade inlet" reads on conduit 5 having closable inlet openings 4 (see col. 4, lines 44+ and Fig. 2). (Examiner's note: The specification

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states that the inlet ventilation duct does not have to be lined, as in Kugeler et al. See page 7, lines 1+, of the specification.); e) “below grade outlet in spatial cooperation with the cavity” reads on the air passage outlet at the bottom 6 of the storage vessel (e.g. see Fig. 2).

Note from Fig. 1 that: a) a major portion of Kugeler et al.’s waste storage facility is positioned below grade; and b) the cavity accommodates no more than one spent fuel canister positioned in a vertical orientation.

As to claim 4, note from Fig. 2 that the inlet ventilation duct is substantially S-shaped.

As to claims 5 and 6, note from Fig. 2 the two inlet ventilation ducts 5 that are on opposing sidewalls of the body of the storage vessel.

As to claim 7, at least a portion of Kugeler et al.’s ventilation duct is insulated from the body of the storage vessel by air, which is an insulator.

As to claim 8, at least a portion of Kugeler et al.’s cavity is insulated from the body by air and overheating protection 36 of fireproof clay (see Fig. 1 and col. 4, lines 61+).

As to claim 10, Kugeler et al.’s vessel and ventilation ducts are hermetically sealed to ingress of below grade liquids (see Fig. 2)..

As to claim 13, see col. 6, lines 48+.

As to claims 14-17, see elements 40, 40a in Fig. 2 and paragraph bridging cols. 6 and 7.

As to claims 18-23 and 30, Applicant's claim language reads on Kugeler et al.'s storage vessel as follows: a) "lid" reads on the combination of cover 26 and the top portion of the vessel, including ventilation towers 29 (see col. 5, lines 59+ and Fig. 2); (Examiner's note: As to the lid being "removable", any structural element that is attached to another element can be removed, e.g. by cutting, and Kugeler et al.'s lid is inherently removable); b) "shear ring" reads on the bottom circumferential portion of cover 26, which portion has a ring shape and inherently provides shear resistance to lateral forces (Examiner's note: Claim 20 does not preclude the shear ring to be an integral part of the lid); c) "outlet ventilation duct" reads on outlet ventilation tower 29 and slits 30 (see Fig. 2).

As to claim 19, note from Kugeler et al.'s Fig. 2 that there is an air plenum between cover 26 and canister 7.

As to claims 22 and 23, see Fig. 2.

As to claims 24 and 25, see Fig 2 showing the concrete slab on which Kugeler et al.'s storage vessel is positioned.

As to claim 29, see Fig. 2.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kugeler et al. in view of Singh et al. (U.S. 6,519,307 B1). Kugeler et al. disclose the Applicant's claims except for the vent screen.

Singh et al. teaches a ventilated storage facility for spent nuclear fuel that uses a vent screen to keep animals, insects and debris from entering the ventilation ducts (see elements 22, 23 in Fig. 1 and col. 3, lines 4+).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus, as disclosed by Kugeler et al., by the teaching of Singh et al. ('307), to cover the intake port with a screen, to gain the advantages thereof (i.e., avoid entry of undesired items in the ventilation duct), because such modification is no more than the use of a well known expedient in the nuclear art.

4. Claim 26 is rejected under 35 U.S.C. 103(a) as being obvious over Kugeler et al.

As to the limitation in the claim regarding the height of the body above grade, this is a matter of optimization within prior art conditions or through routine experimentation (see MPEP 2144.05 II.A). The limitation involves a balancing between the cost of excavation for placement of a major portion of the vessel below grade vs. minimizing the above-grade profile of the system from external events such as sabotage or airplane collisions.

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5. Claims 9, 11, 12 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kugeler et al. in view of Waltersdorf et al. (U.S. 4,649,018). Kugeler et al. disclose the Applicant's claims except for the steel lining for the cavity and inlet ventilation duct.

Waltersdorf et al. teach a container for spent fuel elements, comprising metal lined chambers where the elements are disposed and metal-lined air cooling ducts (see Figs. 1-3). They further teach that it is advantageous to have the chambers lined with steel to provide long working life (see col. 2, lines 21+). They also teach lining the cooling air ducts with metal to obviate splitting-off or breaking-off of pieces from the concrete surfaces of the ducts (see col. 2, lines 45+).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus, as disclosed by Kugeler et al., by the teaching of Waltersdorf et al., to provide a metal lining for the cavity (e.g., to provide long service life) and for the inlet ventilation duct (e.g., to avoid concrete flaking), because such modification is no more than the use of a well known expedient in the nuclear art.

### ***Claim Objections***

6. Claim 1 is objected to because of the following informalities: at line 2, the word, "an" should be replaced with "a".

***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 571-272-6880. The examiner can normally be reached on 6:30-5:00, Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RJP  
January 19, 2006

A handwritten signature in black ink, appearing to read "R Palabica". The signature is written in a cursive, flowing style.